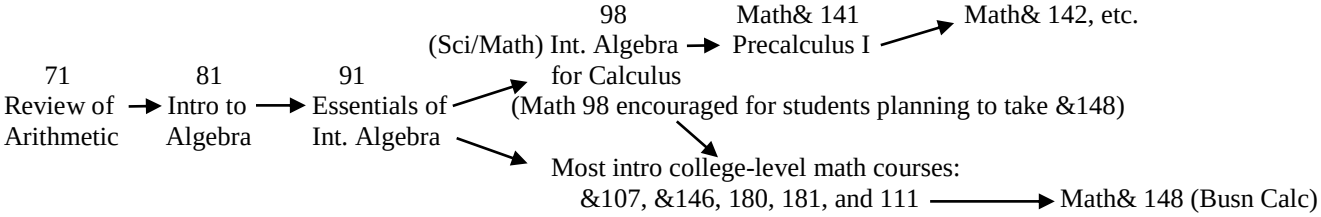
Basic Flowchart of Sequence



New Course Number	Course Title	Key Topics (Not exhaustive)
Math 071	Review of Arithmetic	Arithmetic with decimals, fractions, ratios, percentages, and proportions
Math 081	Introduction to Algebra	Arithmetic with signed (negative) numbers, computing with formulas, basic concepts of geometry (area, perimeter, dimension), interpreting/constructing graphs from real data, solving basic equations
Math 091	Essentials of Intermediate Algebra	Concept and application of essential functions – linear, exponential, quadratic, plus systems of linear equations, basic statistics (data summary – mean/median/mode, spread)
Math 098	Intermediate Algebra for Calculus	Algebra of polynomials and detailed study of function families (quadratic, rational, radical) – intervals of increase/decrease, transformations

Course Adoption Form (CAF) for Math 081: Introduction to Algebra.

Start reading from the "Full Course Title" field below – content and learning outcomes on next page.

Course Abbreviation	Number	Computer Entry Title for Quarterly *(24 Spaces Only)*
Math	081	Introduction to Algebra

Year & Quarter this course was first offered at Highline:	1986	Next CAF review date:	Spring 2013

Grading System					
☒	Decimal Grade	☐	CR/NC	☐	Other: *(Specify)*

Check Degree Distribution Requirements the Class Meets

Humanities	Soc Science	Math/Science	Lab	Communication	Computation	Phys. Ed.	Diversity & Globalism**	Transferable Elective
☐	☐	☐	☐	☐	☐	☐	☐	☐

***Diversity & Globalism Committee application must be attached. CAF revisions/updates require D&G Committee notification.*

Capacity & Credits

Class Limit	Credit
32	5

Continuous Enrollment

Yes	No
☐	☒

Number of Contact Hours

Lecture	Lab	Worksite	Clinical	Mixed/Variable	Other
55					

Computer Enforced Prerequisite	CR in HS 071 or Math 071, or COMPASS Pre-Algebra score above 28
If Permission, List Criteria	
Quarterly Catalog Note	Prereq: CR in HS 071 or Math 071, or COMPASS Pre-Algebra score above 28
Applicable Fees	

Is this a NEW COURSE?

Yes* ☐ No ☒

**If yes, attach a completed New Course Justification Form to this when submitted.*

Is this for the 2-year Catalog?

Yes ☒ No ☐

Is an Invasive Procedure Used?

Yes ☐ No ☒

OR

UPDATING or REVISING an existing course?

Does this REPLACE an existing course? Yes* ☐ No ☒

**If yes, list number of the course being replaced.*

UPDATING: Check changes being made to the previous CAF for this course.

Change Course Title ☒ Add/Delete Degree Distribution? ☐

Change Course Credit ☐ Include or Change Prerequisite? ☐

List any other changes made:

Some content shifted between Math 81 and Math 91. Course will have an increased emphasis on developing reasoning and critical thinking skills as well as successful math behavior skills.

FULL COURSE TITLE: *(35 Spaces Only for Title)*

Introduction to Algebra

CATALOG DESCRIPTION:

A beginning algebra course that develops proficiency in fraction and signed number arithmetic, evaluation of expressions, and solving linear equations in one variable.

Course Abbreviation and Number

Math 081

Who is this course designed to serve?

Students needing a first algebra course

Course Outline: *(Organization of content)*

- Arithmetic of fractions and signed numbers
- Area and perimeter of circles, triangles, and rectangles and volume of boxes
- Pie, bar and line graphs
- Evaluation and simplification of expressions
- Polynomial arithmetic (division is limited to monomial only)
- Solving linear equations up to the level of ax + b = cx + d
- Emphasis on applying concepts and skills learned to relationships and formulas in everyday life and other college coursework
- Emphasis on developing quantitative reasoning ability and symbolic reasoning ability

Student Learning Outcomes of Course **Indicate the desirable results that can be expected to occur from this course experience.** *(These are usually expressed in measurable and observable terms).*		Assessment Methods **Outcomes measured by the following:** *(These categories may be changed.)*					
		Portfolio	Examination	Written Assignments	Projects	Oral Presentations	Other (Indicate specifics below)
1.	Describe the meaning of and compute efficiently by hand with basic fractions and signed numbers	☐	☒	☒	☐	☐	☒
2.	Use proportions to perform unit conversions	☐	☒	☒	☐	☐	☒
3.	Describe the meaning of and compute dimensions, perimeters, and areas of triangles, circles, and rectangles, and volume of boxes	☐	☒	☒	☐	☐	☒
4.	Construct and interpret pie, bar, and line graphs as well as be able to interpret most "newspaper-type" graphs	☐	☒	☒	☐	☐	☒
5.	Simplify and evaluate a variety of expressions, including polynomials	☐	☒	☒	☐	☐	☒
6.	Solve linear equations in one variable up to the level of ax + b = cx + d	☐	☒	☒	☐	☐	☒
7.	Describe and use available resources to be successful in math classes	☐	☒	☒	☐	☐	☒
8.	Identify the goal and relevant information given in a question or task, then describe some of the steps necessary to complete the task	☐	☒	☒	☐	☐	☒
9.	Describe her/his reasoning on a task, including sources of confusion or errors	☐	☒	☒	☐	☐	☒
Note: Acceptable assessment tools include group work, portfolios, presentations, projects, and mastery tests.							

College Wide Outcomes (CWO) **Indicate the degree to which this outcome is addressed in this course.**		Scale				
		4=substantially (Key focus)	3=moderately	2=mildly (very limited)	1=not directly addressed	0=not addressed
1.	**Think critically**	☐	☒	☐	☐	☐
2.	**Reason quantitatively**	☒	☐	☐	☐	☐
3.	**Communicate effectively**	☐	☒	☐	☐	☐
4.	**Civic responsibility in diverse and multifaceted environments**	☐	☐	☐	☒	☐
5.	**Information/visual literacy**	☐	☒	☐	☐	☐

Course Adoption Form (CAF) for Math 091: Essentials of Intermediate Algebra.

Start reading from the "Full Course Title" field below – content and learning outcomes on next page.

Course Abbreviation	Number	Computer Entry Title for Quarterly *(24 Spaces Only)*
Math	091	Essentials of Interm Alg

Year & Quarter this course was first offered at Highline:	1986	Next CAF review date:	Spring 2013

Grading System

☒ Decimal Grade	☐ CR/NC	☐ Other: *(Specify)*

Check Degree Distribution Requirements the Class Meets

Humanities	Soc Science	Math/Science	Lab	Communication	Computation	Phys. Ed.	Diversity & Globalism**	Transferable Elective
☐	☐	☐	☐	☐	☐	☐	☐	☐

***Diversity & Globalism Committee application must be attached. CAF revisions/updates require D&G Committee notification.*

Capacity & Credits

Class Limit	Credit
32	5

Continuous Enrollment

Yes	No
☐	☒

Number of Contact Hours

Lecture	Lab	Worksite	Clinical	Mixed/Variable	Other
55					

Computer Enforced Prerequisite	**2.0 or higher in Math 081 or 085, or COMPASS Pre-Algebra score above 59**
If Permission, List Criteria	
Quarterly Catalog Note	**Prereq: 2.0 or higher in Math 081 or 085, or COMPASS Pre-Algebra score above 59**
Applicable Fees	

Is this a NEW COURSE?

Yes* ☐ **No** ☒

**If yes, attach a completed New Course Justification Form to this when submitted.*

Is this for the 2-year Catalog?

Yes ☒ No ☐

Is an Invasive Procedure Used?

Yes ☐ No ☒

OR

UPDATING or REVISING an existing course?

Does this REPLACE an existing course? Yes* ☐ No ☒

**If yes, list number of the course being replaced.* _____

UPDATING: Check changes being made to the previous CAF for this course.

Change Course Title ☒ Add/Delete Degree Distribution? ☐

Change Course Credit ☐ Include or Change Prerequisite? ☐

List any other changes made:

Substantial content revision. Course eliminates some content from previous version of Math 91 and adds content previously taught in Math 95 and 97. Course will also have increased emphasis on developing reasoning and critical thinking skills as well as successful math behavior skills. Should help students successfully take college-level classes with less remediation.

FULL COURSE TITLE: *(35 Spaces Only for Title)*

Essentials of Intermediate Algebra

CATALOG DESCRIPTION:

An intermediate algebra course that develops understanding of functions (linear, exponential, quadratic) as well as proficiency with simplifying expressions involving integer exponents, solving linear inequalities, and solving linear equations in two variables. GRAPHING CALCULATOR REQUIRED: TI-83 or 84 recommended.

Course Abbreviation and Number

Math 091

Who is this course designed to serve?

Students needing algebraic skills such as graphing formulas, using and analyzing function relationships, and basic statistics.

Course Outline: *(Organization of content)*

- Solving linear equations in one variable having many terms, fractional coefficients, and distributing
- Solving linear inequalities in one variable, and expressing results with graphs and interval notation
- Summarizing data sets using mean, median, mode, the five-number summary, and histograms or box plots
- Concept and notation of functions, domain, and range, including exposure to absolute value and piecewise functions
- Features of functions (max/min, increasing/decreasing, positive/negative, intercepts, rates of change), including using compound inequalities and interval notation to describe them
- Linear functions (concept, intercepts, slope, slope-intercept form, constructing from pairs of points, linear regression)
- Facts about vertical, horizontal, parallel, and perpendicular lines
- Solving systems of equations in two variables by graphical estimation and the elimination method
- Exponential functions (concept, intercepts, asymptotes)
- Simplifying expressions involving integer exponents
- Quadratic functions (concept, constructing graphs using intercepts, vertex, and concavity, finding intercepts using the quadratic formula)
- The Pythagorean Theorem and distance formulas, including estimating and computing roots of numbers
- Emphasis on applying concepts and skills learned to situations in everyday life and other college coursework
- Emphasis on developing quantitative reasoning ability and symbolic reasoning ability
- Training in use of graphing calculator throughout course to evaluate, graph, trace, zoom, change window, and perform regression

Student Learning Outcomes of Course **Indicate the desirable results that can be expected to occur from this course experience.** *(These are usually expressed in measurable and observable terms).*		**Assessment Methods** **Outcomes measured by the following:** *(These categories may be changed.)*					
		Portfolio	Examination	Written Assignments	Projects	Oral Presentations	Other (Indicate specifics below)
1.	Complete a variety of algebraic tasks, including calculating with radicals, simplifying exponential expressions, and solving linear equations, inequalities, and systems of linear equations	☐	☒	☒	☐	☐	☒
2.	Define measures of center and spread, then use them to summarize meaningful data numerically and graphically	☐	☒	☒	☐	☐	☒
3.	Define the concepts of function, domain, and range, then compute and describe features of several function types	☐	☒	☒	☐	☐	☒
4.	Define and identify slope, intercepts, and slope-intercept form, then use them to describe and construct linear equations and graphs for realistic situations	☐	☒	☒	☐	☐	☒
5.	Define and describe the features of exponential functions, then apply them to realistic situations	☐	☒	☒	☐	☐	☒
6.	Define quadratic functions, then compute features of their graphs and solve quadratic equations	☐	☒	☒	☐	☐	☒
7.	Describe her/his level of understanding before a formal assessment as well as steps she/he will take to improve	☐	☒	☒	☐	☐	☒
8.	Describe and consistently apply an effective strategy for solving problems	☐	☒	☒	☐	☐	☒
9.	Use formal terminology to describe his/her reasoning on a task as well as patterns in his/her errors	☐	☒	☒	☐	☐	☒

Note: Acceptable assessment tools include group work, portfolios, presentations, projects, and mastery tests.

College-wide outcomes checklist on next page.

College Wide Outcomes (CWO) Indicate the degree to which this outcome is addressed in this course.		Scale				
		4=substantially (Key focus)	3=moderately	2=mildly (very limited)	1=not directly addressed	0=not addressed
1.	**Think critically**	☐	☒	☐	☐	☐
2.	**Reason quantitatively**	☒	☐	☐	☐	☐
3.	**Communicate effectively**	☐	☒	☐	☐	☐
4.	**Civic responsibility in diverse and multifaceted environments**	☐	☐	☐	☒	☐
5.	**Information/visual literacy**	☐	☒	☐	☐	☐

Content and Learning Outcomes from Course Adoption Form (CAF) for Math 098: Intermediate Algebra for Calculus.

Course Outline: *(Organization of content)*

The course is organized into five strands:

I. Algebra

* Factor expressions used in Pre-calculus. including quadratics, trinomials, difference of squares, sums and differences of cubes, and polynomials
* Combine and simplify expressions using addition, subtraction, multiplication, and division for
  - Rational expressions including complex fractions
  - Radical expressions with limited variable radicands
  - Expressions with rational exponents
  - Rationalize expressions with monomial/binomial denominators involving only square roots
* Solve various types of equations with an emphasis on
  - Quadratic equations involving completing the square, quadratic formula, factoring, and square root property
  - Rational equations
  - Radical equations involving a maximum of two square roots
* Solve nonlinear inequalities (polynomial and rational) using sign analysis and express solutions using interval notation and understand the relationship between sign charts and graphs of functions
* Combine and simplify complex numbers and convert between radical notation and complex numbers

II. Functions-with an emphasis on quadratics, rational, and radical functions

* For limited types of elementary functions be able to use and interpret functional notation
* Determine the domain and range of a variety of functions algebraically and graphically
* Determine the x and y intercepts and extrema for elementary functions
* Use simple transformations (horizontal, vertical, x-axis rotations) to create graphs of new functions from their basic elementary functions
* Determine intervals where a function is increasing/decreasing
* Algebraically construct new functions using addition, subtraction, multiplication, and division

III. Communication

* Require initial written self-assessment by students, with periodic revision through quarter.
* Summarize and interpret mathematical information from written formats.
* Identify, extract, and organize critical information into mathematical symbols
* Clearly communicate steps using proper terminology, symbolization, and notation
* Demonstrate attention to detail-students will be able to analyze written material for errors and explain why they are incorrect

IV. Problem solving

* Create realistic mathematical models for applied problems involving polynomials
* Create a suitable quadratic function for modeling a real world situation presented using words, data, or diagram
* Identify and justify whether a result generated from a model has real world significance

V. Technology-emphasis on graphing calculator

* Graph functions choosing the appropriate windows for viewing all details
* Use the calculator to find intercepts, points of intersection, and extrema for functions
* Use the table feature to determine values for functions
* Use a graphing calculator for calculating expression containing multiple operations
* Emphasize quadratic, rational, and radical functions

Student Learning Outcomes of Course	
1.	Apply mathematical operations to simplify a variety of mathematical expressions including polynomials, rational, and radical expressions.
2.	Apply mathematical operations to solve a variety of mathematical equations including polynomials, rational, and radical equations.
3.	Successfully construct a sign chart for a variety of functions, specifically polynomial and rational, and discuss their relationship to inequalities and graphs.
4.	Examine key features of important function families-quadratic, rational, and radical functions.
5.	Recognize, describe, and analyze functional relationships presented symbolically, tabular, graphically and verbally.
6.	Effectively use graphing calculators to describe and model functions.
7.	Solve real world problems using techniques discussed in this course.
8.	Model situations and relationships using polynomial functions.
9.	Communicate, summarize, and interpret mathematical ideas in written and verbal form.